

What is claimed is:

1. A water purification system which comprises:
  - a. an intake for receiving water;
  - b. a first cartridge filter operatively connected to said intake for receiving water from said intake;
  - c. A carbon filter operatively connected to said first cartridge filter for receiving water from said first cartridge filter;
  - d. a second cartridge filter operatively connected to said carbon filter for receiving water from said carbon filter;
  - e. a reverse osmosis system operatively connected to said second cartridge filter for receiving water from said second cartridge filter, said reverse osmosis system comprising a reverse osmosis filter;
  - f. an ultraviolet sterilizer operatively connected to said reverse osmosis system for receiving water from said reverse osmosis system;
  - g. a mixed bed deionizer operatively connected to said ultraviolet sterilizer for receiving water from said ultraviolet sterilizer;
  - h. a third cartridge filter operatively connected to said mixed bed deionizer for receiving water from said mixed bed deionizer; and
  - i. a discharge operatively connected to said third cartridge filter for receiving water from said third cartridge filter, wherein said discharge discharges purified water.
2. The water purification system of claim 1 wherein said first cartridge filter is a 5 micron filter.
3. The water purification system of claim 1 wherein said carbon filter contains granular carbon.
4. The water purification system of claim 1 further comprising one or a plurality of additional carbon filters operatively connected to said carbon filter for receiving water from

said carbon filter.

5. The water purification system of claim 1 wherein said second cartridge filter is a 1 micron filter.
6. The water purification system of claim 1 wherein said reverse osmosis filter removes from about 90% to about 99% contaminants within a range of greater than 200 to 300 molecular weight.
7. The water purification system of claim 1 wherein said reverse osmosis system further comprises a high pressure pump which operates the reverse osmosis system at pressures between about 150 and 400 psi.
8. The water purification system of claim 7 wherein said reverse osmosis system further comprises a pressure relief valve to prevent over pressurization of the reverse osmosis filter.
9. The water purification system of claim 1 wherein the ultraviolet sterilizer produces 185 nm wavelength radiation.
10. The water purification system of claim 9, wherein the ultraviolet sterilizer also produces 254 nm wavelength radiation.
11. The water purification system of claim 1 wherein the mixed bed deionizer comprises mixed anion and cation exchange resins.
12. The water purification system of claim 1 wherein the mixed bed deionizer comprises two tanks.
13. The water purification system of claim 1 wherein the third cartridge filter comprises absolute rated membrane filters.
14. The water purification system of claim 1 which further comprises a conductivity gauge situated after the third cartridge filter for measuring resistivity of the water, such that if the resistivity of the water is below 17 MegOhms, the water is diverted to a drain.
15. The water purification system of claim 1 further comprising a bypass of the mixed bed deionizer, said mixed bed deionizer being by passed when the water is chemically treated.
16. The water purification system of claim 1, wherein the reverse osmosis system further

comprises a tangential flow wherein the water is split into treated water, which is water that has had its contaminants removed by the reverse osmosis filter, and waste water, which is the water remaining behind.

17. The water purification system of claim 16, wherein the waste water is either diverted to a drain or is recycled into the reverse osmosis system.